

## Library Workstations and the Changing Paradigm of Library Service

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## LIBRARY WORKSTATIONS AND THE CHANGING PARADIGM OF LIBRARY SERVICE

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### INTRODUCTION

In 1645 Oxford's Bodleian Library denied Charles I the loan of a book.[1] It could be argued, that with the English Civil War well advanced, Charles I was a bad risk. On the other hand, Oxford was at the time a stronghold of partisans to the Crown. Whatever the case, just four years later Charles I was executed. I am not sure this is an example of cause and effect but it does serve to highlight how libraries have so frequently approached the question of access.

Three hundred and fifty years later access has not improved that much. A user is still required to come to a physical place called the library to obtain the information resources he or she may need. Granted, many places do let the user remove the materials from the library though there are many times we, as librarians, wish we could employ Cromwell's axe man to mete out justice to the patron who fails to return an item on time. Automation and the access to electronic information holds the potential for changing all of this. In particular, the development of the library information workstation holds real promise for liberating the user and, hopefully, the librarian from an outdated paradigm which has frequently provided little concern for the user.

The traditional library paradigm has emphasized the ownership of materials and the primacy of library functions. It is my contention that libraries must adopt a new paradigm which forgoes ownership for access and stresses the importance of the user as the center of library service. This is both different from and more than Martel's client-centered library in which the library is organized by librarians to improve library service to the user but does not specifically take into account the user's information needs as perceived by the user.[2] What I am advocating is that the user not the librarian defines user needs.

### FORCES TOWARDS CHANGE

What has led me to believe that a paradigm change is possible now? A set of factors have come into play within the last couple of years which are forcing or at least nudging librarians to re-evaluate how they will function in the decade ahead. Two factors are self-evident and have gotten our attention in much the same way as the two-by-four across the side of the head was able to get the attention of the Missouri mule. These two factors are the rising cost of materials, particularly serials, and the development of automation for information technology. The third factor, which has been more subtle, is the response of users to the access of electronic information. Below I will discuss each of these impacts in greater detail with emphasis upon the latter two factors.

### ECONOMICS

The economic climate of the next decade does not hold much promise for the library which is ownership driven. With subscriptions of scientific journals rising at the alarming rate of almost twenty percent a year, it has become quite clear that collections are being severely damaged as library budgets are no longer able to keep pace with inflation. The premise that it is possible for a library to own every journal that it's clientele may need is no longer



possible even by the very rich libraries. This, of course, is a myth that was never true but one that librarians always wanted to believe was possible. In addition, the pressure to maintain serial holdings has forced many libraries to reduce their monographic budget shifting funds formerly used to acquire monographs to the serial budget in order to limit serial cancellations.

As Richard Dougherty has noted, it is no longer possible to maintain the "bigger is better" model of libraries.[3] This model has been sustained under the misguided notion that it is possible to provide satisfactorily for all of the information needs of one's clientele with one's own collection. An interesting sidelight to this model is the philosophy of many an academic library that it will supply the user with what the library has in its own collections but the user must pay for information obtained from other libraries. This cavalier, though prevalent, attitude ignores accountability. In this model the librarian is not held accountable for materials bought but not used. However, the user is held responsible, i.e. must pay charges, for items the library does not own but are needed by the user.

#### AUTOMATION

It should be apparent that any model of library service in the future must recognize access rather than ownership as a key element of the paradigm. With the adoption of automation by libraries there is a great potential for accomplishing this essential transition which libraries must take advantage of if they are to effectively survive as viable information resources for their clientele. Unfortunately, the initial efforts of library automation have not been that helpful. Until recently, most library automation has been centered on library file maintenance. The large files that libraries are noted for such as acquisition order files, card catalogs, and circulation records, have readily been adapted to automated format. The result has been the reformatting of traditional systems with new technologies without altering the paradigm of library service. In such a model nothing has changed. Automation has only meant that file processing can be faster. The effect is that libraries of today are little different from those of Charles I's day. Certainly they are not any more responsive to users' needs. It would appear that the purpose of library automation has been to make work easier for library staff rather than improve access for the user.

Recently, the development of the online public access catalog (OPAC) has caused many librarians to recognize the potential for ensuring that library resources become more readily available to the library patron than was possible through traditional methods. It has caused us to begin to think of the OPAC terminal, particularly when locally mounted bibliographic databases are introduced into the OPAC environment, as information workstations.

#### LIBRARY INFORMATION WORKSTATION

The idea of the information workstation has been around for a long time although it has not really had an impact on libraries.[4] Why should things change now?

Is such a powerful information workstation a reality for libraries? The answer is an unequivocal yes. With the 386 chip already standard, the 486 chip already introduced, and the 586 chip and 686 chip both making their appearance before the turn of the century, the processing power of the microcomputer will be quite capable of handling the needs of such a workstation. In addition, by the end of the decade the resolution of microcomputer monitors will be as good as a book. Sound and moving images will also be available as regular features of the microcomputer by the end of this decade. One can also expect scientific quality graphics by the same time.



The features of such a library information workstation will include:

I. Local features

- A). Locally created files/databases: bibliographic, full-text, and numeric (reserves journal lists, acquisitions lists, uncataloged materials lists, special collections, current awareness topics).
- B). Expert systems for local files (user guides, faculty department information including research interests and publications).
- C). Bibliographic instruction aids and user manuals for the system (help screens).
- D). Links to other in-house electronic sources (CD-ROM with linking local journal holdings).
- E). Bulletin board (library newsletter, library hours).

II. Campus/Regional

- F). Online public access catalog (OPAC).
- G). Local/regional mounted commercially available bibliographic databases.
- H). Local/regional textual materials (Oxford English Dictionary).
- I). Local/regional created databases.
- J). Campus network and services (campus telephone directory, bookstore inventory).
- K). Electronic mail.

III. National and International

- L). Network access (INTERNET, JANET).
- M). Links to other systems and utilities (OCLC, Dialog).
- N). Dial-up database access.
- O). Downloading of files.

In summary, the key elements in the library information workstation are: access to resources beyond the local institution (initially bibliographic access, but ideally through document delivery), customization of information databases for the user, and intelligent software to facilitate ease of navigation through the system. With such capabilities in a workstation and the availability of such capabilities beyond the walls of the library, particularly when document delivery is an integrated feature of the workstation, an ownership of library resources model will and must be challenged. The ability to customize features in the workstation for specific groups of users, in fact for individual users, makes the library information workstation model especially responsive to users needs. For the user away from the library, the library information workstation becomes a module in his or her own workstation which would contain word-processing, etc. Although the library information workstation requires the expertise of the professional librarian for the development of its features and software, because of sophisticated post boolean software features, it will not need an intermediary as traditional library service does. This is an important factor in liberating library access from the boundaries of physical plants.

#### USER RESPONSES TO ELECTRONIC INFORMATION

The third factor contributing to a shift in the paradigm of library service is the user's expectations of access to information within an electronic environment. Coming to the library will no longer be enough. Let me give you a few examples.

In 1984, a study at the University of Illinois at Urbana-Champaign (UIUC) undertook to identify user needs in a world in which electronic access to



information resources was on a dramatic upturn. The study sought to determine ...

"whether there might not be a growing population of library patrons who are active users, but who seldom or never interact with a librarian or even come into the library and whose information needs and concerns are different from traditional library users.[5]

These users who accessed information through remote electronic channels were referred to as "invisible users". The study, which was the first to use an electronic questionnaire to solicit library users' needs, obtained its data from a questionnaire that was both mailed to the faculty and made available in an electronic version on the various mainframe computer systems on the UIUC campus. Interestingly, the results of the questionnaire did identify a population whose priorities for service was different than the priorities of the traditional library user. For those who responded using the paper version of the questionnaire, the top five priorities for electronic information in descending order of desirability were:

- 1) training to do own online database searching;
- 2) more online catalog terminals in branch libraries;
- 3) more training in use of the online catalog;
- 4) more dial-up access to the online catalog; and
- 5) an electronic reserve system.

For those who responded using the electronic version of the questionnaire, the top five priorities in descending order were:

- 1) more dialup access to the online catalog;
- 2) twenty-four hour electronic reference service;
- 3) more online bibliographic databases;
- 4) more online catalog terminals in branch libraries; and
- 5) an online interlibrary loan system.

Using a weighting of importance of the ranking given by the respondents to each of the priorities it should be noted that the top five priorities of those who responded electronically to the survey all ranked higher than the highest ranking by those who responded using the traditional paper questionnaire.[6] In other words, those who responded electronically to the survey deemed electronic access to information in general as more important than those who responded to the survey through the paper version of the questionnaire. What is interesting about the survey is that while those who responded using the paper questionnaire emphasized improved access to the online catalog, those who responded electronically placed an emphasis on improved access to resources. Even in this early study the signs of increased expectations of library users within an electronic library environment were being expressed.

While the "invisible user" study merely identified the need for improved services that the users wanted the library to provide, a recent report by the American Physical Society's Task Force on Electronic Information Systems has been more far-ranging in its assessment of information needs. Focused on a vision for the year 2020, the Task Force saw the American Physical Society (APS) in a proactive role in providing access to information. Most importantly, the Task Force noted:

"Among all aspects of electronic information systems we have considered, the use of on-line electronic databases has the most far-reaching potential for altering the way physicists conduct their research."[7]



The Task Force perceives a single database for physics information, including full-text sources, by the year 2020. Full-text will be published as "documents" whether they be books or articles. The documents will then be supplied to the database through which the documents can then be accessed. Most importantly, the Task Force sees the APS controlling this database and the database being accessible to the scholar at his or her workstation, not just through the library. Their vision offers little involvement of librarians in the traditional library setting. They, however, do envision the librarian being more involved in improving access to electronic resources by indexing and other means.

In the mountains of Oaxaca, Mexico, a third response to access to information is occurring thanks to the encouragement and support of anthropologist Russell H. Bernard and others. Jesus Salinas Pedraza, an Otomi Indian, and Josefa Gonzalez Ventura, a Mixtec Indian, have created the Latin American Center for Publication in Native Languages to encourage individual members of the distinct native groups of the area to document their own cultures. Using Apple II computers, natives have begun writing in eight of the 16 languages of the state of Oaxaca. Through programming, special word processors for each of the languages has been created incorporating all of the special symbols used in each language. This system, which is easily adaptable to other languages, allows for an indigenous publishing industry. It can readily accommodate itself to small populations that do not have the market economy to attract national or even regional publishing houses to produce their materials. More importantly, it allows these people to document their own cultures from their own perspective rather than from that of an outsider as has been so frequently done in the past by anthropologists and others. As Bernard notes:

"...lack of access to publishing is one of the key factors in the loss of cultural heterogeneity. It is certainly one of the major reasons why native people around the world do not produce their own descriptions of their cultures." [8]

#### A NEW PARADIGM

I hope I have shown through the preceding remarks that the development of the library information workstation and user expectations concerning access and control of information should challenge libraries to change their model of service. This model, which is built upon library ownership of materials, linear access to resources, and governed by traditional library functions is no longer adequate to meet user needs. In its place I propose a model which replaces ownership for access, non-linear for linear, and user defined needs for librarian defined needs.

As I noted earlier, ownership by a library of all of the material its users need is an impossibility. Economic reality has finally made us understand that this was always a myth. Access, however, must be understood to mean access to the information not just the citation. One of the most commonly heard complaints associated with the availability of CD-ROM databases and locally mounted bibliographic databases on an online public access catalog (OPAC) is that patrons will identify materials that are not in the library. Of course, the user was exposed to similar citations, if not the same citations, in the paper versions of these bibliographic databases in the very same library. The medium has changed the expectations of the user. The citation is retrieved from a paper index? Who knows if the library owns it? The citation is retrieved from an electronic index? The library had better own it! This, without a doubt, has become the librarian's new anxiety. It does not have to be if librarians are willing to commit to resource sharing and making those materials readily available to users.



Non-linear access is going to sneak up on us whether we want it to or not as we shift from analog to digitized information. The library information workstation environment will encourage accessing information with a freedom that will not be bound to follow direct lines but will allow the pulling up of a variety of sources within a single environment to answer the information needs of the user. The fact of the matter is, that for such tasks as end-user searching, the user needs a more interactive non-linear approach than might be found in the mediated search situation.

Most important to a new model of library service is the role of the user in the model. In the traditional library structure the user needs are defined by the librarians. In the new model the librarians would respond to the needs of users as articulated by the users. The view is that of etic verses emic. From an anthropological view point these concepts are defined as:

"Etics. Etics is a label for a variety of theoretical approaches in anthropology concerned with the outsiders view of the culture. ... One can never assume that the researchers etic categories (e.g., kinship) reflect a perceived reality for an informant, who has his or her own emic categories. It is very easy - especially when engaged in the task of cross-cultural comparative research - to reify one's own etic categories and assume they are the emic categories of Western social science."[9]

"Emics. Emics refers to a variety of theoretical field approaches in anthropology concerned with the inside or native (folk) view of a culture. ... the main idea is that the subjects one is studying have their own (folk) categories (cognitive categories), assumptions about these categories to each other, as well as values concerning items classified according to these categories. To understand the behavior of subjects, then, it is crucial that the field researcher identify the cognitive properties of these emic categories; otherwise interpretations of behavior cannot claim to reflect units of behavior which is meaningful to the people studied."[10]

Although the definitions refer to a researcher and the people being studied, I believe that only a modicum of modification to the definitions needs to be made to make them applicable to librarian and library user.

Etics. Etics is a label for a variety of theoretical approaches in librarianship concerned with the librarians view of library service ... One can never assume that the librarians etic categories (e.g., Library of Congress subject headings) reflect a perceived reality for a library user, who has his or her own emic categories. It is very easy - especially when engaged in the task of library service - to reify one's own etic categories and assume they are the emic categories of librarians.

Emics. Emics refers to a variety of theoretical field approaches in librarianship concerned with the inside or patron view of library service. ... the main idea is that the users one serves have their own service categories (cognitive categories), assumptions about these categories to each other, as well as values concerning items classified according to these categories. To understand the behavior of users, then, it is crucial that the librarian identify the cognitive properties of these emic categories; otherwise interpretations of service cannot claim to reflect units of service which is meaningful to the library user.

Too frequently we take our emic system and impose it upon the patrons. Too frequently we assume patrons are all alike. That is why reference rooms were



built and why undergraduate programs fail to receive appropriate support from library administrators. The creation of undergraduate libraries in the United States was often a thinly disguised argument to obtain more space rather than to implement library programs for a segment of the user population who had special needs. The same thinking causes librarians to assume that all faculty or even a broad subject area, e.g., scientists, have the same information needs and acquire information in the same manner. Understanding the distinctiveness of the clientele and responding to their needs, not our assumptions of user needs, will certainly cause us to move toward a new paradigm of library service.

### IMPACTS

What impacts would such a model have upon the library if it was adopted by librarians? Two significant areas that will be affected will be collections and librarians.

In a user-oriented model, the goal of the library would be to obtain in a timely manner those materials that a user needed. The materials would not necessarily need to be acquired through purchase. The material could be borrowed through interlibrary loan, photocopied, or obtained electronically. Such a system requires that libraries participate in mutually beneficial resource sharing plans. It also means that library material budgets need to be reallocated to accommodate access rather than ownership. Some funds would need to be allocated for access costs since it is highly unlikely that libraries would embark upon a venture of improved access to their own materials without some reimbursement. The concern about net-lending and net-borrowing will not easily disappear. However, the expenditure of the budget should be evaluated, not on how it contributes to the library inventory, but rather, how it contributes to the information needs of the user.

The user-based paradigm requires highly trained subject specialists who can navigate through the various information resources regardless of the medium. These subject specialists would work closely with faculty and students. This might mean that the library as a physical place becomes less important to the librarian than the proximity to the clientele whether that be a physical or an electronic proximity. Among activities that would be of particular importance would be the development of improved subject access to databases, improved end-user search aids, and the development of electronic-based bibliographic instruction. With subject specialists becoming partners with the faculty of the university, such a career, hopefully, would provide as strong and financially rewarding a career as does library administration.

### CONCLUSIONS

Will the model work and if it does will it be accepted? There is no doubt that the development of the library information workstation makes the paradigm eminently feasible. However, it will be the sociocultural components rather than the technological developments that will determine if there is a change in the paradigm of library service. Whatever the future holds, we must be proactive rather than accept the traditional reactive librarian model if we are to be effective participants in the information game of the future. Simply put, either librarians evolve to a new paradigm of library service or patrons will revolt, demanding or usurping a new service model.



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